

Fifty Years of Thermodynamic Formalism in Physics, Dynamics, and Probability

6 – 10 August 2018 @Snellius

The meeting took place at the Lorentz Center@Snellius from August 6-10, 2018, and attracted 23 participants from 3 continents. The primary goal was to bring together leading specialists working in various areas of rigorous thermodynamic formalism: i.e., with background in statistical physics, probability, ergodic theory, in order to exchange ideas, discuss various approaches and methods, and possibly, to start a cross-disciplinary collaboration.

During the workshop, various aspects of modern theory of Gibbs states were discussed. We had an open problem and two brainstorm sessions. Particularly fruitful was the participation and contribution of a few physicists who made clear connections to actual open problems in theoretical physics.

Leandro Ciolletti (Brazil) presented interesting approach to developing formalism for the one-sided Gibbs states for product spaces with spin values which assume values in compact uncountable spaces.

Mark Piraino (Canada) presented a breakthrough result on renormalization of g -measures. More specifically, for the first time, classes of g -measures closed under single-site renormalization have been identified.

Steven Berghout (The Netherlands) presented novel results on renormalization of not fully supported Markov measures, which superseded all known results.

Christian Maes (Belgium) has shown applications of Gibbsian formalism to questions in non-equilibrium statistical mechanics on entropy production and the fluctuation symmetry.

Ale Jan Homburg (The Netherlands) has shown how two qualitatively different types of behaviour: synchronized and intermittent, can occur naturally in rather simple random dynamical systems, and formulated an interesting conjecture on the existence of an absolutely continuous invariant measures for random iterations of logistic maps.

We plan to add open problems, submitted by the participants, to the workshops homepage.

Participants evaluated highly the scope, program and organization of the workshop. In the opinion of organizers and participants, the workshop was a large success. We are very grateful to the Lorentz Center and its staff for the hospitality and wonderful support before and during the workshop.

Anders Johansson (Gävle, Spain)

Anders Öberg (Uppsala, Sweden)

Mark Pollicott (Conventry, UK)

Evgeny Verbitskiy (Leiden, Netherlands)